CLAIMS

What is claimed is:

1. A searching and recording method to search a corresponding replacement block for a defect block in an optical recording medium, so as to correctly record digital data onto said optical recording medium, the optical recording medium comprising a plurality of sequentially arranged defect management areas (DMAs), each DMA having a data area (DA) and a spare area (SA), both of said DA and SA comprising a plurality of blocks for recording digital data, each said block being coded with a corresponding address for identification, and said optical recording medium further comprising a defect table, which has a plurality of defect table blocks (DTB), each said DTB corresponding to one of said DMA in said optical record medium and comprising a plurality of predetermined recording entries corresponding one by one to the blocks of said SA, said searching and recording method comprising the following steps:

   in said optical record medium, when the digital data, which are designated to record on a predetermined block in the DA of a target DMA, are determined to be recorded on another block, inspecting whether a target DTB corresponding to the target DMA still has an idle recording entry;

   if there is no idle recording entry in said target DTB, searching said DTBs adjacent to said target DTB for any said idle recording entry by sequentially leapfrogging around said target DTB back and forth; and

   when said idle recording entry is searched in a replacement DTB, recording the digital data in a replacement block corresponding to said idle recording entry, wherein said replacement block is in the SA corresponding to said replacement DTB.

2. The searching and recording method of claim 1, wherein if there is at least one idle recording entry in the corresponding target DTB, record the digital data in a

replacement block corresponding to said idle recording entry in the SA of said target DMA.

3. The searching and recording method of claim 1, wherein a replacement determination module is used for determining whether the digital data should be recorded in another block.

4. The searching and recording method of claim 3, wherein if the digital data is designated to be recorded in the predetermined block of said optical record medium but the predetermined block contains defect, the replacement determination module determines that the digital data has to be recorded in another block.

5. The searching and recording method of claim 3, wherein if an abnormal operation occurs while reading the digital data from said optical record medium, the replacement determination module will determine that the digital data has to be recorded in another block.

6. The searching and recording method of claim 1, wherein the optical recording medium is a CD-RW (Compact Disk ReWritable).

7. The searching and recording method of claim 1, wherein the optical recording medium is a DVD+RW (Digital Versatile Disk plus ReWritable).

8. A searching and recording system to search a corresponding replacement block for a defect block in an optical recording medium, so as to correctly record digital data onto said optical recording medium, the optical recording medium comprising a plurality of sequentially arranged defect management areas (DMA), each DMA having a data area (DA) and a spare area (SA), both of said DA and SA comprising a plurality of blocks for recording digital data, each said block being coded with a corresponding address for identification, said optical recording medium further comprising a defect table, which has a plurality of

defect table blocks (DTB), each said DTB corresponding to one of said DMA in said optical record medium, which comprising a plurality of predetermined recording entries corresponding one by one to the blocks of said SA, said searching and recording system comprising:

a replacement determination module determining whether the digital data which are designated to record on a predetermined block in a DA of a target DMA should be recorded in another block;

a searching module inspecting whether the defect table still has an idle recording entry in a target DTB corresponding to the target DMA when the replacement determination module determines the digital data to be recorded in another block;

a recording module, recording the digital data in a replacement block corresponding to said idle recording entry in the SA of said target DMA if there is at least one idle recording entry in the corresponding target DTB;

wherein if there is no idle recording entry in said corresponding target DTB, the searching module sequentially leapfrogs around said target DTB back and forth to search for any idle recording entry in the adjacent DTB for replacement; wherein until a replacement DTB containing any idle recording entry is searched, the record module records the digital data in a replacement block corresponding to said idle recording entry in the SA of the DMA which corresponds to the searched replacement DTB.

9. The searching and recording system of claim 8, wherein if the digital data is designated to be recorded in the predetermined block of said optical record medium but the predetermined block contains defect, the replacement determination module determines that the digital data has to be recorded in another block.

10. The searching and recording system of claim 8, wherein if an abnormal operation occurs while reading the digital data from said optical record medium, the replacement determination module will determine the digital data has to be recorded in another block.

11. The searching and recording system of claim 8, wherein the optical recording medium is a CD-RW (Compact Disk ReWritable).

12. The searching and recording system of claim 8, wherein the optical recording medium is a DVD+RW (Digital Versatile Disk plus ReWritable).